

# **International Energy Policy and International Climate Policy**

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# Challenges

- Demographic Change
  - Population Growth
  - Urbanization
- Economic Growth
- Environmental Protection
  - Eutrophication
  - ...
  - Climate Change
  - Biodiversity



# Responses - Transition or Transformation?

## Sustainable Development

In 1987 the Brundtland Commission defines sustainable development (SD) as a *“development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”*

- **Goals**
- **Instruments**
- **Technology**

# Millennium Development Goals and Energy

## ▪ Poverty and Hunger

- *Reduce the proportion of people with incomes below 1\$/day.*
- Modern fuels and electricity increase household incomes and reduce domestic workload.

## ▪ Health

- *Reduce the rate of maternal mortality, the death rate for children under the age of 5 years and to have halted the spread of major diseases.*
- Electrical devices for water treatment and modern cooking fuels reduce risks of infections.
- Modern forms of energy improve the performance of hospitals.

## ▪ Environmental Sustainability

- *Stop the unsustainable exploitation of natural resources.*
- Substituting cleaner fuels and supporting renewables contributes to this goal.

# Millenium Development Goals and Energy II

## ■ Universal Primary Education

- *Guarantee a full course of primary education for every child in 2015.*
- Access to modern forms of energy reduces domestic workload and increases time for education.
- Electricity enables new forms of learning and facilitates access to information e.g. via radio, television or the internet.

## ■ Gender Equality and Women´s Empowerment

- *Ensure equal access for boys and girls to primary education*
- Electricity facilitates access to information on gender issues.

(Source for MDGs: UN-Energy)

# International Climate Policy

## UN Framework Convention on Climate Change 1992 (UNFCCC)

*stabilizing atmospheric concentrations of greenhouse gases to avoid “dangerous anthropogenic interference” with the climate system*

## Kyoto Protocol 1997

- Cap & Trade
- Joint Implementation (JI)
- Clean Development Mechanism (CDM)

# International Energy Policy

## Actors

- International Agencies: IEA, IAEA, IRENA
- Nongovernmental Organizations: GREENPEACE, WBCSD, ...

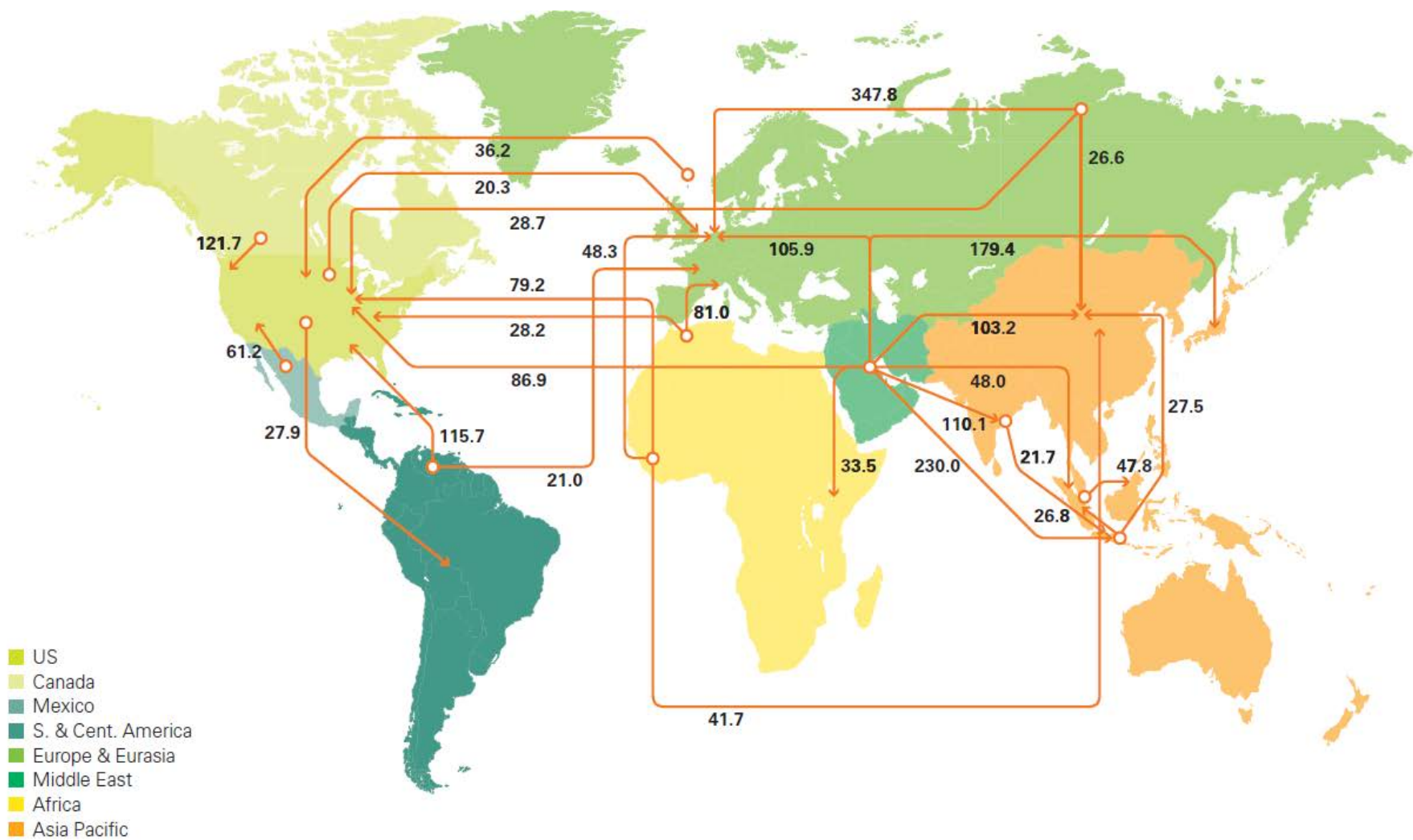
## Topics

- Security of Supply
- Access
- Climate Change
- Technology Transfer

## Governance



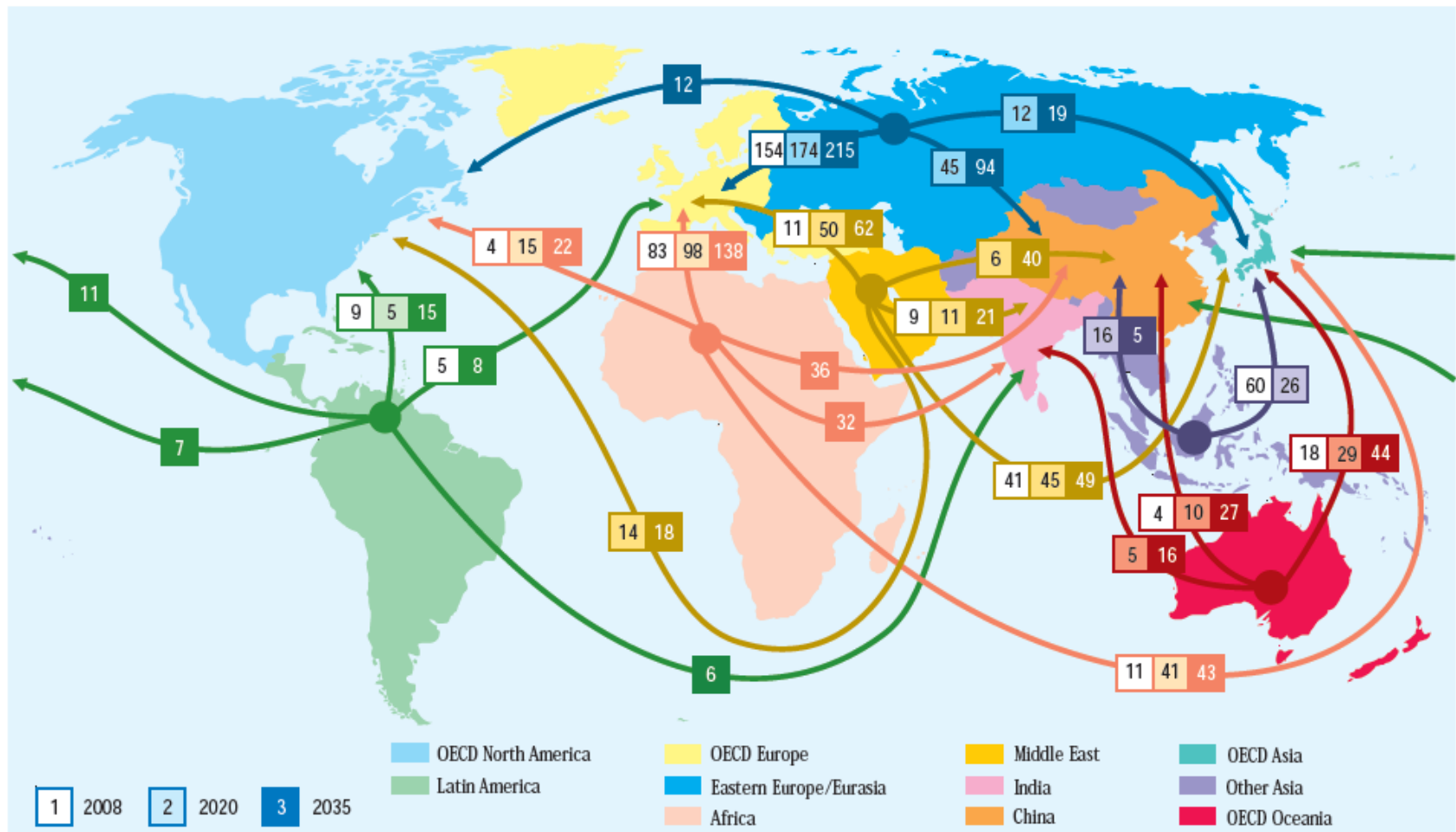
# Major Trade Movements for Oil (Mill tones)



Source: BP (2011)



# Trade - Net Inter-Regional Natural Gas Flows (bcm)



The boundaries and names shown and the designations used on maps included in this publication do not imply official endorsement or acceptance by the IEA.

Source: IEA WEO 2010

# Role of Technology

## Technologies

- new options
- improved options

## From Technology to Systems

- process chains
- integration

## Assessment of Technologies and Systems

- multiple criteria
- multidimensional

## Questions?

Is technological progress driving societal development?

Do societal and political decisions shape future energy systems?

Is access to energy a fundamental right?

Priority for renewable energy systems?

## Suggested Reading

1. BP: Review of World Energy
2. International Energy Agency: Energy Technology Perspectives
3. International Energy Agency: World Energy Outlook
4. World Commission on Environment and Development: Our Common Future
5. Worldbank: World Development Report
6. Worldwatch Institute: State of the World